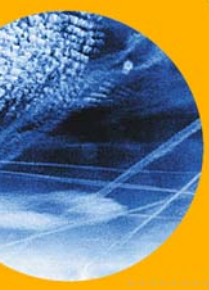
Leveraging *Network Intelligence* for Smart Enterprise Networks



Solution Brief

Allot communications

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Introduction

In today's business world everything is connected. Companies need to be in constant communication with their customers, suppliers and employees. Information sharing is vital, whether internally within the company or externally to partners and customers. Fast and constant access to information, as well as the ability to seamlessly communicate that information, has emerged as a major enabler of business success today.

Also essential to this success is an ever-growing range of *business-critical applications* that typically navigate the enterprise network. Businesses are reliant on the smooth and uninterrupted performance of such online applications to support their daily operation, from emails and VoIP, to CRM or ERP applications. Moreover, if a customer or sales representative in the field is denied access to a business critical application, orders cannot be placed, shipping information is unavailable, transactions are impeded and income is at risk.

What's the Problem?

When evaluating the efficiency of an enterprise network, it is important to remember that although many different applications run on the network, via an Internet connection or a Wide Area Network (WAN), not all of them are critical to the success of the business or even remotely relevant to its everyday operation. However, the negative impact that these and an endless range of "nice to have" applications may have on the network's role in securing that success is often immense, as the network is a limited resource that must be managed carefully to maximize its value.

With so many applications fighting for their share of the enterprise bandwidth, things tend to get more than a little crowded. Application overpopulation is a major problem for enterprise networks, often leading to a costly network slowdown, a great deal of downtime, constant user frustration and most of all – loss of valuable income. This is why problems across the WAN often lead network operators to the conclusion that there is simply not enough bandwidth to go around. With so many vendors just waiting to offer the network manager a 'great deal' on quick-fix solutions (including compression and acceleration, added bandwidth etc) how could one resist?

However, these quick fix solutions only buy a limited amount of time. In order to manage the network efficiently and ensure consistently high levels of performance, network managers need to have network intelligence. They need to be able to understand their network – what applications are running, which users are the heaviest users of bandwidth, which users might be infected with viruses and so on. It is only when the network manager has a complete picture can s/he control the network to its maximum efficiency, as opposed to being controlled by the network.

Pinpointing Performance Issues

Application performance problems typically occur in one or more of an enterprise network's three main segments: the **Internet link**, the **WAN** or the **data center**.

The Internet link

Whether a business is web-based or not, the Internet has become a vital business tool for almost every organization. For most employees, it is horrifying to imagine not being able to access their email account for an hour, let alone an entire day or week. Many of us have become reliant on the Internet as a valuable source of information used for any number of daily tasks in the office. Silently, some of us have also become accustomed to the convenience of downloading the latest episode of their favorite show to watch later at home, while getting on with things at the office. Like other parts of the network, the Internet link is an essential business tool that should be working to support the success of the business – and as such it should be managed. While many network managers are concerned with the connectivity and security of their Internet links, they often overlook the issue of how these critical links are being utilized by applications and the employees using them. Unfortunately, it is precisely this information that holds the key to understanding the source of the problem and to avoiding its recurrence by adapting an intelligent, cost-effective approach to managing Internet connectivity.

The WAN

Enterprise networks are often composed of a number of regional/remote sites connected to the main network hub located at headquarters. Because many network users (employees, business partners or customers) are reliant on this mobility to perform their everyday duties, accessing business critical applications from a distance is often encumbered by serious performance issues. Not having reliable access to IT resources at headquarters is usually the source of a great deal of frustration and can have a very real impact on efficiency of remote (or mobile) users. In addition, without the proper approach and tools, dealing with the constant challenge of optimizing this connection can be extremely time-consuming and expensive.

The data center

Not all application performance issues occur at the edge of the network. Many organizations have followed the trend of collapsing their information storage into a single data center. The aim is to save time and money by having all information resources concentrated in a single data center with one main "fat" network pipe responsible for the delivery of information to and

from its network users (local and remote). While this concept solves some issues, it also creates others. Very often, when companies collapse their file servers, application servers, mail servers, ERP systems, CRMs, etc into a single data center, the main "fat" pipe actually becomes the bottleneck to delivering this information in a timely fashion to network users attempting to access it. This is why the success of a data center is completely dependant on the effective and intelligent management of the traffic traversing this pipe.

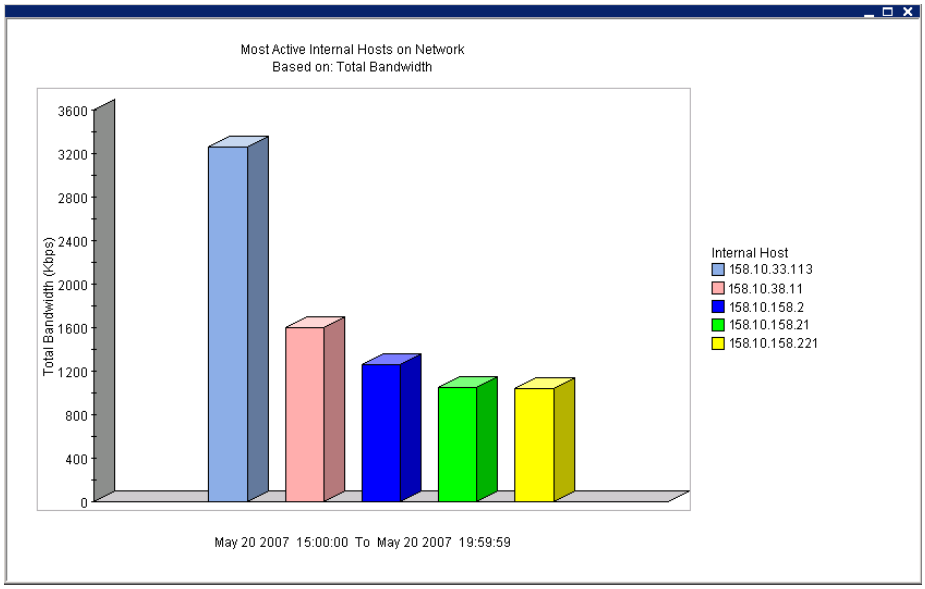
What's the Solution?

Allot's solutions for enterprise network management are geared towards delivering *actionable network intelligence* – knowing your network and optimizing its performance.

Visibility - the keystone of *Network Intelligence*

The first step towards achieving Network Intelligence is to discover what the Internet link, the WAN and the data center are being used for and by whom, at any given time. Allot's solutions utilize Deep Packet Inspection (DPI) technology to provide visibility at the application level in real time (often referred to as layer-7 in reference to the OSI model), which is crucial to understanding how your network is being utilized.

The gathered information is delivered via the NetXplorer (NX) centralized management system, which is used as the network manager's main interface for viewing and controlling all network traffic per user, in real-time and over time. Allot NetXplorer is also the centralized user interface used to manage all Allot traffic management devices deployed on the network. Regular automated updates to the protocol base are sent out to allow network managers to keep up with the rapid roll out of new applications being accessed by employees.



NetXplorer graph reports on the bandwidth being consumed by specific network users over a certain defined time period.

Allot NX Reporter provides a graphical depiction of how the network (Internet, WAN and data center pipes) is being utilized, and offers a vast range of reports and graphs used for advanced usage analytics (see NX Enterprise Report Binder for a collection of sample

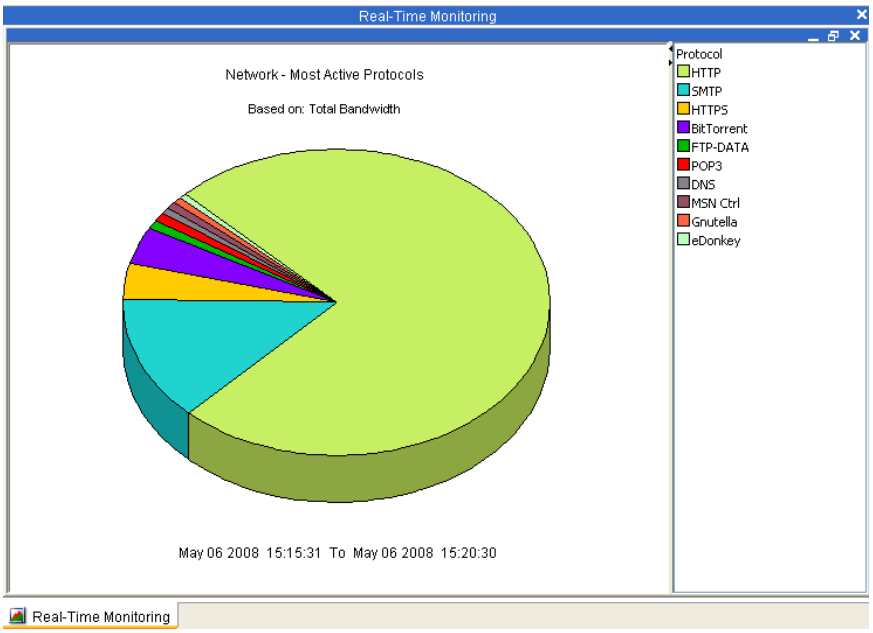
reports). Network managers are instantly enlightened with answers to questions such as: which applications are employees accessing via the Internet, how much SAP traffic is travelling between the data center and the regional site in Hong Kong, what is the busiest time slot of network use and why?

NX Reporter is a highly-scalable and robust tool that offers drill-down capabilities that enable the network manager to examine the traffic down to individual user and application sessions, providing visibility at all levels. Thus a network manager can choose to display and shape the application traffic for a global data center, while at the same time troubleshoot an individual user's application traffic at a particular regional site.

The NX Reporter also collects usage information over the long-term. This information is essential for understanding how application and user behavior changes over time, and consequently for determining capacity planning and the impact of new application rollouts.

Allot's real-time monitoring and advanced reporting capabilities provide valuable information such as:

- Total bandwidth distribution over the entire network
- Volume of allocated bandwidth per application, per regional office
- Most popular applications overall
- Most popular applications per regional site



NetXplorer graph report on the most active protocols consuming the bandwidth at a particular enterprise office in real time. NX's drill-down capabilities enable a closer look at any specific bandwidth segment for further details.

Network Intelligence for Internet optimization

The next step is to put the "network intelligence" to work, by creating and implementing Quality of Service (QoS) policies to adjust traffic in line with the organization's business goals. Armed with an accurate understanding of network usage, network managers can devise the company's Internet Acceptable Use Policy (AUP) that will regulate how the Internet is to be effectively and efficiently used by employees. This is a transparent traffic management contract that is fully conveyed to employees and updated regularly to reflect changing network needs.

Allot's NetEnforcer and Service Gateway solutions for traffic management, enable the effective implementation of the AUP through the creation and enforcement of QoS policies linked to each department, application and user. NetXplorer provides a simple user interface that enables network managers to create policies that define the amount of bandwidth made available for specific applications during certain hours, thus prioritizing the applications accessed via the Internet. Policy definitions may include any combination of priority, bandwidth allocation, access, traffic-shaping and quota actions to be applied per application or per user to ensure optimum network performance and Quality of Experience (QoE).

Network							
Identification	Conditions					Actions	
Name	Alarms Assignme...	In Use	Internal	Service	Time	Access	Quality of Service
Network		☑	Any	All Service	Anytime	Accept	Normal Priority
All Traffic		☑	Any	All IP	Anytime	Accept	Normal Priority - Pi...
VoIP		☑	Any	VoIP	Anytime	Accept	Normal Priority - Vir...
Web Applic...		☑	Any	Web Applications	Anytime	Accept	Normal Priority - Vir...
Streaming ...		☑	Any	Streaming Applicati...	Anytime	Accept	Normal Priority - Vir...
Instant Mes...		☑	Any	Instant Messaging ...	Anytime	Accept	Normal Priority - Vir...
Mail		☑	Any	Mail	Anytime	Accept	Normal Priority - Vir...
File Transfer		☑	Any	File Transfer	Anytime	Accept	Normal Priority - Vir...
Network Op...		☑	Any	Network Operation	Anytime	Accept	Normal Priority - Vir...
P2P Applica...		☑	Any	P2P Applications	Anytime	Accept	Normal Priority - Vir...
Fallback		☑	Any	All Service	Anytime	Accept	Normal Priority - Vir...

A typical Internet AUP as depicted by the NX policy management interface

The NX Reporter can then be used to view in real-time the effectiveness of the policies once they are implemented, including the effect they have on applications, traffic and users. The Internet AUP can be revised and updated as often as required, simply by the click of a button.

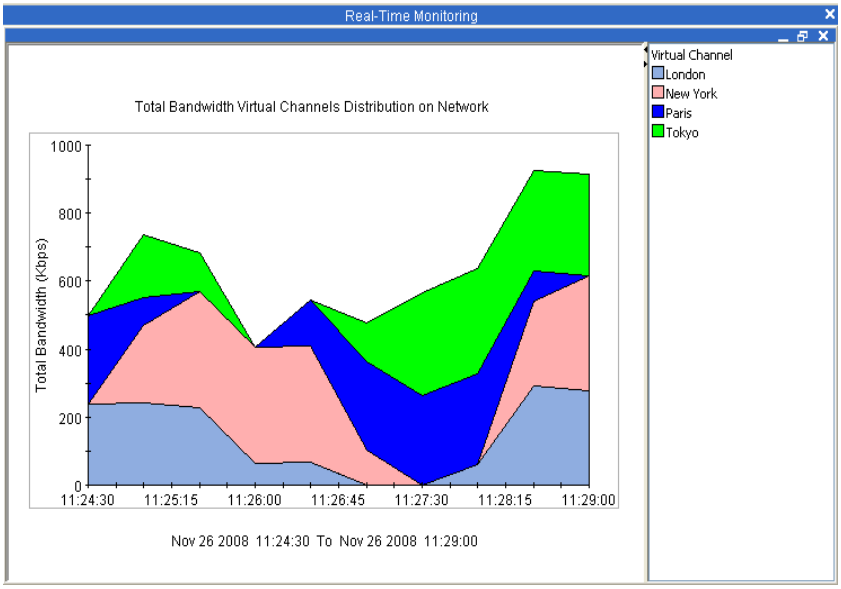
Once applications have been prioritized, the company's Internet link is optimized to support the performance of business critical applications and network managers are made available to deal with the network's other tasks. By maximizing efficient utilization of its bandwidth, the enterprise is able not only to reduce costs but also to actively save money on future bandwidth investments and general operating expenses.

Network Intelligence for guaranteeing optimal WAN performance

In enterprise network environments, much like in the case of the Internet, ensuring the WAN's unvarying high performance is usually a matter of prioritizing network traffic to facilitate the consistent reliable delivery of business critical applications and avoid congestion. Because of the dedicated nature of a typical WAN topology, and due to the high cost of bandwidth infrastructures, the WAN must be managed meticulously to ensure its effectiveness as an everyday tool for the remote or mobile network user. WAN bandwidth is therefore considered a highly sensitive resource as its performance can be hindered by something as seemingly innocuous as the transfer of a large email file.

The key to ensuring the optimal performance of the WAN is the ability to manage it intelligently. Allot's network intelligence solution allows network managers to utilize network intelligence to create policies that maximize its performance. Here too, network managers use the Allot solution to prioritize applications in line with network needs and avoid performance problems that obstruct business operations. Business critical applications can take precedence over 'nice to have' or recreational applications at specified times and in predefined locations.

As before, once the policies have been provisioned the network manager can continually monitor their effectiveness by tracking the performance of the applications across the WAN links with the NX Reporter. In addition, the real-time visibility provided by the Allot NetXplorer, coupled with the simplicity of creating and implementing policies based on this information, makes it possible to adjust the performance of any given application or user location in an instant. There is an immediate benefit from the sharp reduction in helpdesk calls from those formerly-frustrated remote and regional network users.



Typical NetXplorer graph reporting on the distribution of bandwidth per-regional office for a specific application in real time.

Network Intelligence to maximize the value of the data center

Although data center consolidation can present a great way to save on valuable company resources and budgets, any consolidation project must be managed intelligently to ensure its success. Because the data center is most probably serving numerous local and remote users and even possibly being accessed by external users via the Internet, to justify the implementation of a server consolidation solution, network managers must be able to cope with the inevitable grab for bandwidth that occurs at its bottleneck access point.

Complete visibility and the ability to control and manage the traffic traversing the 'mega-pipe' leading to and from the data center is vital. Network managers must be capable of prioritizing business critical applications, and knowing who is using the network, and for what purpose, at all times.

Allot's network intelligence solutions, composed of the NetEnforcer, Service Gateway and NetXplorer, grant network managers the ability to monitor traffic applications, and define and enforce policies to ensure its efficient utilization and avoid its overpopulation. They can decide whether to allocate bandwidth to the CRM or to email, to ERP access or to Citrix, at any given time. They can grant local users preference over remote users and decide whether to grant specific employees or departments access to certain applications at certain times, if at all. Here too, creating and implementing the policy is simply achieved via the NetXplorer GUI.

The NX Reporter follows through by tracking the policy's effectiveness both in real time and over time.

Allot's solutions are scalable to ultra-high performance rates (above 20Gb) and are unique in their ability to facilitate traffic management as well as additional security-related features such as Denial of Service (Dos/DDos) protection to the data center.

Solution Advantages:

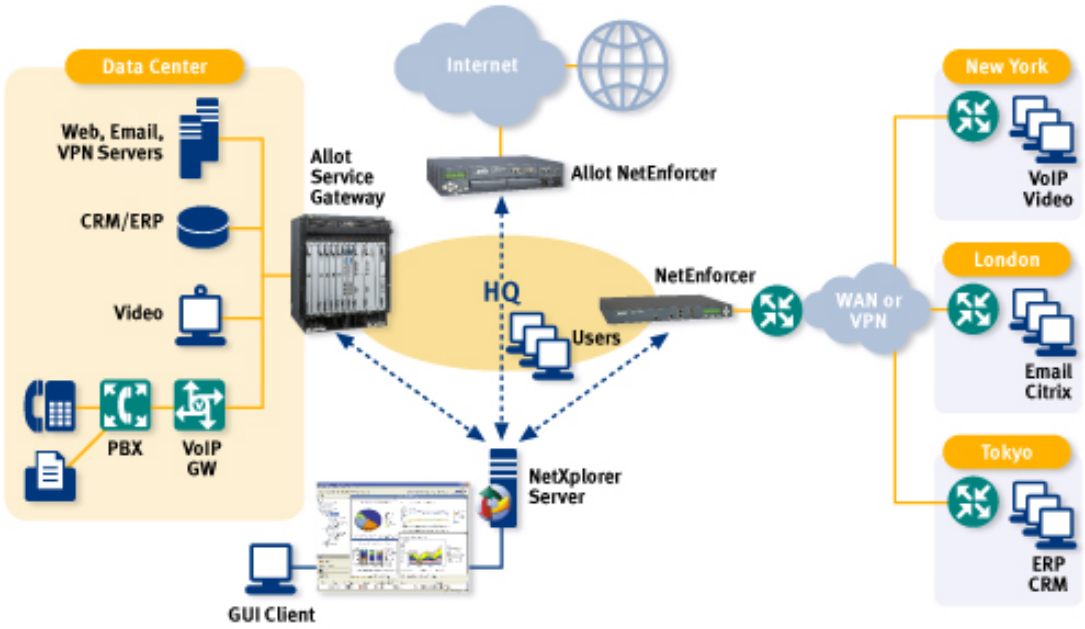
- **Network Intelligence**: NetXplorer allows network managers to see and understand how their network is being used by applications and users, and to directly link service deployment and performance policies to their business goals.
- **Bandwidth savings**: Optimized network utilization enables the postponing of unnecessary bandwidth upgrades.
- **Ensure fair access and QoE**: Application prioritization ensures the network links are being used primarily for business purposes and that no single user is weighing down performance.
- **Scalable solution:** Allot's traffic optimization solutions are highly scalable and can support various types of links of up to 10G capacity**.**
- **Centralized management**: NetXplorer allows network managers to monitor and control the entire network from a single, centralized location.

Solution Components:

- **NetEnforcer or Service Gateway** network traffic management devices
- **NetXplorer** centralized management system with NX Reporter

Typical deployments

Depending on the Allot solution(s) desired, the network manager will usually deploy Allot DPI platforms and management elements as shown below.



Typical Allot deployment in an enterprise network environment

Conclusion

The Allot traffic management solution is a unique and elegant system that helps network managers save their business a great deal of time and money and dramatically increase their ROI on existing deployed resources. It is the only solution that delivers an all-encompassing view of network behavior and makes it easy to effectively and immediately act on this network intelligence.

The Allot traffic management solution enables network managers to instantly locate and fix network performance obstacles and to proactively monitor and manage the network in order to maximize its value and ensure that it is working for the company. The extreme scalability and robustness of the Allot solution make it a future-proof solution for any organization, enabling companies to focus their energies and budgets on profitability and growth.

www.allot.com info@allot.com

Americas: 7664 Golden Triangle Drive, Eden Prairie, MN 55344 USA - Tel: (952) 944-3100; Toll free: (877) 255-6826; Fax: (952) 944-3555
Europe: NCI–Les Centres d'Affaires Village d'Entreprises, 'Green Side' 400 Avenue Roumanille, BP309 06906 Sophia Antipolis, Cedex France - Tel: 33 (0) 4-93-001167; Fax: 33 (0) 4-93-001165
Asia Pacific: 6 Ubi Road 1, Wintech Centre 6-12, Singapore 408726 - Tel: 65 6841-3020; Fax: 65 6747-9137
Japan: Puri-zaido Ochanomizu 301, Kanda Surugadai 4-2-3, Chiyoda-ku, Tokyo 101-0062 - Tel: 81 (3) 5297 7668; Fax: 81 (3) 5297 7669
Middle East & Africa: 22 Hanagar Street, Industrial Zone B, Hod Hasharon, 45240 Israel - Tel: 972 (9) 761-9200; Fax: 972 (9) 744-3626